

U.S. FOREST SERVICE

KISATCHIE NATIONAL FOREST

Final Report
to
Louisiana Department of Environmental Quality

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ENVIRONMENTAL COMPLIANCE

Goldonna Boat Ramp Bioengineering Streambank Stabilization
CFMS Cooperative Agreement No. 531954
OCR Cooperative Agreement No. 852 800101

September 1999

DEPARTMENT OF ENVIRONMENTAL QUALITY
GOLDONNA BOAT RAMP BIOENGINEERING STREAMBANK STABILIZATION
FINAL REPORT
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BACKGROUND:

The Goldonna Boat Ramp Recreation Site is located on the Winn Ranger District of the Kisatchie National Forest approximately one mile southeast of Goldonna, Louisiana. It is located on a depositional point bar on Saline Bayou National Wild and Scenic River. This recreation site was developed by the Forest Service in 1994. Since that time, the section of Saline Bayou near the boat ramp has become increasingly popular for recreational boating and receives over 1000 recreation visitors annually.

During the spring of 1995, flooding caused severe erosion along the channel of Saline Bayou at the boat ramp. Runoff from the boat ramp parking area onto the eroding area was aggravating the problem. The erosion had partially undercut the parking lot and posed a hazard to the general public. About 150 feet of the streambank required stabilization to prevent additional erosion which would have required that the recreation site be closed. (See Attachment #1).

In 1998, the Kisatchie National Forest obtained a grant from the Louisiana Department of Environmental Quality to fund a stabilization project. The objective of the project was to utilize bioengineering techniques in order to stabilize the streambank along the northwestern side of the Goldonna Boat Ramp Recreation site. Bioengineering techniques use natural material and living root systems to hold soil in place to increase bank stability and may be used in combination with standard engineering practices. These techniques would not detract from the natural aesthetics of this National Wild and Scenic River and are in accordance with Section 7 of the National Wild and Scenic Rivers Act. The project would serve to evaluate the effectiveness of bioengineering streambank stabilization techniques and the feasibility of using these techniques at other locations. The project would serve as a demonstration site for those interested in learning about the techniques.

The Goldonna project is located in the Saline Bayou watershed. The Hydrologic Unit Code - (HUC) for this watershed is 11140208. This HUC is rated as impaired according to the Louisiana Unified Watershed Assessment

IMPLEMENTATION PROCESS:

In June of 1998, the Winn Ranger District of the Kisatchie National Forest met with representatives from the Natural Resource Conservation Service (NRCS) to discuss options for restoration of the streambank at the Goldonna Boat Ramp. The NRCS recommended that in addition to repairing the streambank the Forest Service develop a water diversion to keep runoff from the parking lot from flowing over the eroded bank. A berm running the length of the parking area and down to a channel would be constructed as part of the project.

Root wads were collected in August of 1998. The root wads had stems attached which were approximately 12 foot long and one foot in diameter. After the streambank was excavated, the root wads were placed on the site with the boles pointed towards the bank so that the root wads were directed towards the direction of flow. About 20 root wads were placed below the normal low water mark. Two more layers were placed above the first layer. Each layer was stepped back several feet. A total of approximately 100 root wads were placed on the site. These root wads will provide structural support for the restored area until vegetation can be established. Soil that was hauled to the site in addition to excavated material was backfilled between each layer of root wads. The site was then top dressed with soil and shaped to conform to the surrounding bank. A berm was constructed along the parking lot, above the stabilized bank, to prevent run-off from the parking lot from flowing over the restored location. (See Figure # 1 and # 2 and Attachments # 2-4).

In September of 1998, a prison crew from the Winn Correctional Facility seeded, fertilized and limed the restored location, including the berm. The bank was then covered with erosion matting to prevent erosion of the loose soil until grass could become established. Parking barriers were installed along the perimeter of the entire location. Poor germination of the seed required reseeding in October of 1998. (See Attachment # 5 and # 6).

Over a hundred hardwood saplings (cypress, willow oak, water oak) were planted by the prison crew during the first week of January, 1999. These trees were donated by the Louisiana Department of Forestry. The trees covered the entire restored area. However, due to vandalism, the trees had to be replanted in the later part of January. These trees have been watered all summer long. An extended drought and hot summer temperatures have caused mortality of over 50 percent of the trees that were replanted. In January of 2000, more trees will be planted. Shreveport Green has agreed to donate 50 trees.

An interpretive sign was designed to be installed at the restoration area. This design was sent out for bids and a contract was awarded to GS Images out of Maryland. The sign is a 4 x 6 feet fiberglass imbedded sign. The sign displays photos of the rehabilitation and describes the methods that were used. The sign was taken to the Huey Long Vocational School where students constructed a kiosk to hold the sign. The kiosk was installed adjacent to the rehabilitated streambank. (See Attachments # 8 and #9).

RESULTS AND DISCUSSION:

The restored area has been monitored on a regular basis since the completion of contract work. Since the winter of 1998, there have been several periods of short term, high water flows over the area. This high water has caused the deposition of about an inch of soil over the site. However, no significant erosion was noted. The root wads appear to have stabilized the bank for the short-term so that vegetation can take root to permanently hold the site.

Even though they were being watered weekly, about 50 percent of the trees that were planted at the site have died due to a severe drought and hot summer. Therefore additional trees will have to be planted on the site to provide for long term stabilization of the bank. Trees will be planted in January of 2000. The site will continue to be monitored on a regular basis until vegetation is fully established.

Bioengineering is very cost effective. The final project cost a total of \$17,520 (See Table 1). Conventional methods of stabilization, using rip-rap, would have cost approximately \$23,000. Rip-rap would not have allowed for the revegetation of the bank and would not have been as aesthetically pleasing on the banks of this National Wild and Scenic River.